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DEVELOPMENTS IN USSR RADIO INDUSTRY

ASKS FOR GREATER PRODUCTION OF ELECTRONIC COMPONENTS -- Moscow, Radio, May 54

Part of the USSR radio industry has been assigned to produce over 250 million different condensers, over 300 million resistors, and over 40 million receiver-amplifier tubes in 1955.

The industry must pay more attention to mass producing crystal diodes, transistors, and other semi-conductors; to increasing the size of television screens and cutting the costs of the picture tubes; and to increasing the production of major radio components.

It is also necessary to increase the production of electronic measuring instruments, such as oscillographs, electronic voltmeters, audio-frequency generators, pulse generators, counting instruments, electronic galvanometers, standard signal generators for wide frequency bands, and multimeters.

High-frequency ceramics are needed for making new types of condensers. Non-metallic cores (ferrites) are needed for the new high-frequency transformers. The mass production of crystal diodes and transistors depends on the solution of many scientific technological problems. One of the most important factors for increasing the quality of radio equipment is the use of semi-conductors made of germanium, silicon, and other materials.

The use of crystal diodes and transistors and of more complex circuits will make it possible to decrease the size of the equipment and to increase its operational reliability. It is necessary to advance the study of the physical properties of semi-conducting materials, and to improve the technology of obtaining these materials and processing them into semi-conductors. -- Article by V. Siforov, corresponding member, Academy of Sciences USSR, entitled "Development of Radio Engineering in the USSR."

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C-O-N-F-I-D-E-N-T-I-A-LPLAN INCREASE OF RADIO AND TV PRODUCTION -- Moscow, Radio, May 54

More than 3 million radio receivers and television sets will be produced in the USSR during 1954. This figure will be increased to 4,570,000 in 1955 and to 5,400,000 in 1956. The 1956 figure includes one million television sets.

The following plants lead in the production of radio equipment and regularly fulfill their plans:

Aleksandrov Radio Plant (Korobov, director)

Sarapul' [Ordzhonikidze] Radio Plant (Ivanov, director)

Zaporozh'ye Radio Plant (Lastochkin, director)

Berdsk Radio Plant (Tuchkov, director)

Riga VEF Plant (Gayle, director)

The following plants do not fulfill their plans:

Ural'sk Radio Plant (Komlev, director)

Moscow Radio Plant (Yakovlev, director)

Leningrad Radio Plant (Slepukhin, director)

NEW MODELS OF TELEVISION AND RADIO RECEIVERS -- Moscow, Radio, May 54Large-screen Television Sets

The Temp television set has a picture tube with a diameter of 400 millimeters and an image size of 320 x 240 millimeters. The Volna television set is of the same design as the Temp, except that the diameter of its picture tube is 310 millimeters, giving an image size of 240 x 180 millimeters.

Both television sets can operate with a standard-type antenna or with an antenna having a lead-in made of balanced 300-ohm cable.

Both sets are protected against overvoltage in the supply circuit. A picture tube with an ion trap is being installed on the Temp set.

Both sets are manufactured in the same [unidentified] plant, the chief engineer of which is A. Lichnov.

Receivers for Moskvich and Pobeda Automobiles

So far, the USSR radio industry has not produced any radio receivers for Moskvich and Pobeda passenger cars. Recently, the designers at a radio plant have drawn up plans of a radio for the Moskvich, and have begun designing one for the Pobeda.

The chief engineer of the plant, Korchagin, says that the radio for the Moskvich will be a Class 3 receiver. It will be light (7 kilograms) and compact, and will require a 35-watt input, while its output will be .8 watts. It will have two wave bands, of 150 to 415 kilocycles, and 520 to 1,500 kilocycles. The image attenuation of this set is not less than 20 decibels for both bands.

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The Moskvich receiver will consist of the receiver proper, a vibrator power pack, and a separate loudspeaker. The loudspeaker will be installed behind the dashboard of the automobile.

In 1954, this plant will draw up plans of a small radio receiver, weighing 8 kilograms, for the Pobeda passenger car. This receiver will have an input of 45 watts and an output of 1.5 watts. The rest of the receiver will be similar to that being developed for the Moskvich.

Dnepr-5 Recorder and Combination Set

For a long time, the Kiev Radioapparatnaya Plant has been producing the Dnepr-3 Class 4 tape recorder. However, this recorder is bulky and too heavy (about 32 kilograms), and does not have high-speed rewinding.

The designers at the plant have developed an improved tape recorder model, the Dnepr-5. This model is 10 kilograms lighter and of a smaller size than the Dnepr-3, and is housed in an attractive cabinet.

The non-linear distortion factor of the Dnepr-5 is less than 3.5 percent. The speed of the recording tape is 192.5 millimeters per second.

The set can be supplied from 110-, 127-, and 220-volt power lines and has an input of 110 watts.

The Dnepr-5 recorder has five control buttons, a tone control, and an equalizer. It will cost much less than the Dnepr-3.

In 1954, the plant will begin producing the MIS-8 spring-wound portable tape recorder, which was developed by the Institute of Recording. This recorder will be battery-powered, will be housed in a small carrying case, and will weigh about 6 kilograms. It will record continuously for 15 minutes. It is equipped with a small microphone and earphones for recording control.

The plant is developing a series of universal combination sets consisting of a tape recorder, a Class 2 radio receiver, a record player, and a television set with a 230-millimeter picture tube. All units of the set will be housed in an exquisite cabinet made of costly types of wood. This unit will be about the same size as the well-known T-2 Leningrad television set.

Yefremov is the chief engineer of the Kiev Radioapparatnaya plant.

Minsk R-7 Radio-Phonograph

The designers of the Minsk Radio Plant are completing the plans for a new radio-phonograph, the Minsk R-7. The 1954 model of this radio-phonograph consists of a 7-tube Class 2 radio receiver, a record player with a two-speed motor, and a universal pickup.

The receiver has two long-wave bands (150-415 and 520-1600 kilocycles) and three short-wave bands (14-9.4, 9.35-9, and 11.4-12.1 megacycles). It will have better sensitivity and selectivity than specified by the GOST (State All-Union Standard).

The low-frequency amplifier uses negative feedback, which makes it possible to have high-quality reproduction with a non-linear distortion factor of 2-3 percent.

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The record player has an automatic switch which shuts off the motor at the end of a record. When the record player has stopped, the low frequency amplifier is automatically shorted out. The switch works for all sizes of records.

The plant intends to begin series production of these sets in the third quarter of 1954.

The Minsk Radio Plant is also preparing to series-produce the Avangard television set during the fourth quarter of 1954.

The plant consults artists to design exteriors of cabinets for the sets it produces, such as the Belarus-53 radio receiver.

V. Pumpyanskiy is chief designer of the Minsk Radio Plant.

Svet Television Set

The new Svet television set has a 255 x 340-millimeter screen. It is equipped with a 400 millimeter metal and glass picture tube. This television set is designed for large-scale mass production.

The set is of simple design, and uses newly-developed small parts and midget tubes. It produces high-quality stable images, and requires an input of 160-170 volts [watts?].

It has three television channels and one FM radio channel. It has a simple visual tuning dial. The Svet uses two new small-type 0.5 GD-5 loudspeakers.

The chief designer of the set is V. Ivanov. [Institute which developed this set not identified.]

Dnepropetrovsk Radio Receiver

The designers of the Dnepropetrovsk Radio Plant have developed a Class 2 radio receiver, the Dnepropetrovsk, and have it ready for production. It is a six-tube high-fidelity superheterodyne receiver with two high-fidelity loudspeakers.

The plant is also producing Urozhay two-way radios. The plant's designers are modernizing this set so that it will be more compact and economical than the older model.

Many labor-consuming operations have now been mechanized in the Dnepropetrovsk Radio Plant. The cabinets are being finished by machine a new process for casting speaker magnets is being introduced. Type BF glue is used for fastening the magnets to the loudspeakers.

A. Dormidontov is chief of the Central Laboratory of the Dnepropetrovsk Radio Plant.

Pioner Television Set

The Pioner television set was developed in one of the television laboratories a few months ago. It is the smallest television set developed recently, both in size, weight, number of tubes, input, and number of types of tubes. It is mounted in a small cabinet and its weight is one half that of the KVN-49 television set. It has a higher quality of reproduction than the latter.

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The Pioneer is equipped with a picture tube having electrostatic deflection and focusing. The screen size is 120 x 160 millimeters, and a lens tube to increase the image size. The set can be operated with either a front or a rear door antenna.

I. F. Nikolayevskiy heads the scientific research group which developed the Pioneer.

Oktyabr' Radio Receiver

The Leningrad Metal Products Plant of the Ministry of Local and Fuel Industry RSFSR has developed a new Class 1 radio receiver, the Oktyabr' which it is ready to series-produce.

In designing this receiver, the plant tried to make a high-quality receiver at the minimum possible cost to assure production at a profit. At the same time it was necessary to increase the operational dependability of the receiver. These problems were solved by selecting a circuit with the smallest number of tubes. The receiver has nine tubes, which is less than other Class 1 receivers, and which decreases its cost, makes it less expensive to operate, and increases its reliability. The Oktyabr', with its small number of tubes, not only meets GOST specifications for Class 1 receivers, but considerably surpasses them.

One tube was eliminated in the Oktyabr' receiver, as compared to the Riga-10, through use of the 6K3 input tube. When there are two stages of IF (intermediate frequency) amplification (which is necessary for selectivity in a Class 1 receiver) only a single stage of audio amplification for the voltage taken off the detector is needed. However, the norm for sensitivity measured at the phonograph plug requires the use of two stages of audio amplification.

Because of this requirement, there is excess amplification for radio reception and this has to be decreased with a voltage divider on the output of the detector. In other words, the tubes are used inefficiently. The Oktyabr' has only one stage of audio amplification for radio reception and uses a tube of the IF stage as an extra stage of audio amplification for phonograph operation. Thus, the radio eliminates both a tube and all the circuit components of the stage.

The Oktyabr' has six wave bands, including four short-wave bands. The set has two 5-watt loudspeakers with different resonance frequencies.

Small shielded carbonyl wires, type SB-1A, which incorporate high-quality with small size, are used in all the circuits of the RF (radio frequency) detector, the RF mixer, and the IF amplifier.

The set has a polished walnut veneer cabinet. The Leningrad Metal Products Plant will begin series production of the Oktyabr' at the beginning of the second half of 1954. It intends to produce 5,000 receivers by the end of the year.

I. S. Korolevtsev is deputy chief engineer of the Leningrad Metal Products Plant.

Three New Television Sets

A group of designers at a plant has developed three experimental television sets: the Ekran, Uran, and Neptun. The Ekran has an electrostatic picture tube with a diameter of 180 millimeters; the Uran has a picture tube with electromagnetic deflection and a diameter of 180 millimeters; the Neptun has a picture tube with electromagnetic deflection and a diameter of 230 millimeters.

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The Receiver of the Ekran set has a single-channel circuit and can also receive FM broadcast stations in the UHF band.

The new television sets are modeled after the KVN-49 and have the same chassis as the latter.

New Radio-Phonograph

The Riga Radio Plant imeni A. S. Popov has developed a new Class 2 radio phonograph with a new universal electromagnetic pickup with a reversible head for regular and long-playing records. This radio-phonograph will be a little larger than the Riga-6. The electrical and acoustic specifications will meet GOST requirements for Class 2 radio-phonographs, while certain features will surpass those requirements. These features include maximum undistorted output, the audio frequency band width, the sensitivity of the loudspeaker, and the accuracy and stability of tuning. The new set will also be produced as an ordinary radio receiver. The plant intends to series-produce the radio-phonograph during the fourth quarter of 1954.

The plant's designers and engineers are also working on a new television set with a 310 millimeter screen. This work will be finished by the end of 1954.

In 1953, the Riga Radio Plant imeni A. S. Popov began series production of apparatus which would utilize local telephone networks for the transmission of modulated high-frequency rebroadcasting signals and for transmission of direct current for long-distance supply of amplifiers. The equipment was built in the plant, with the exception of the transmitter, which was built by the Latvian SSR Branch of VNORIE (All-Union Scientific and Technical Society of Radio Engineering and Electrical Communications) at the Riga VEF Plant.

The plant plans to make radio parts and units for its sets available to the general public in 1954.

The director of the Riga Radio Plant imeni A. S. Popov is M. Dirin'sh.

FEWER TUBES IN NEW TV SETS -- Moscow, Vestnik Svyazi, May 54

The new Svet, Sever-3, Sever-2, Avangard, Pioneer, and other television sets will weigh from 28 to 35 kilograms, will have an average of 17 tubes, and will consume no more than 170 watts of electric power. The Leningrad T-2 on the other hand weighs more than 50 kilograms, has 33 tubes, and requires a 320-watt input.

The Pioneer television set has only 9 tubes and has a screen size of 105 x 140 millimeters. [given above as 120 x 160 millimeters]. The use of an electrostatic picture tube simplifies the design of the receiver, saves metal, and decreases the 100 watts.

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